Gas Journal

VOL. 298. 111th YEAR LONDON, APRIL 22, 1959 Nº 4997 PRICE 1/6

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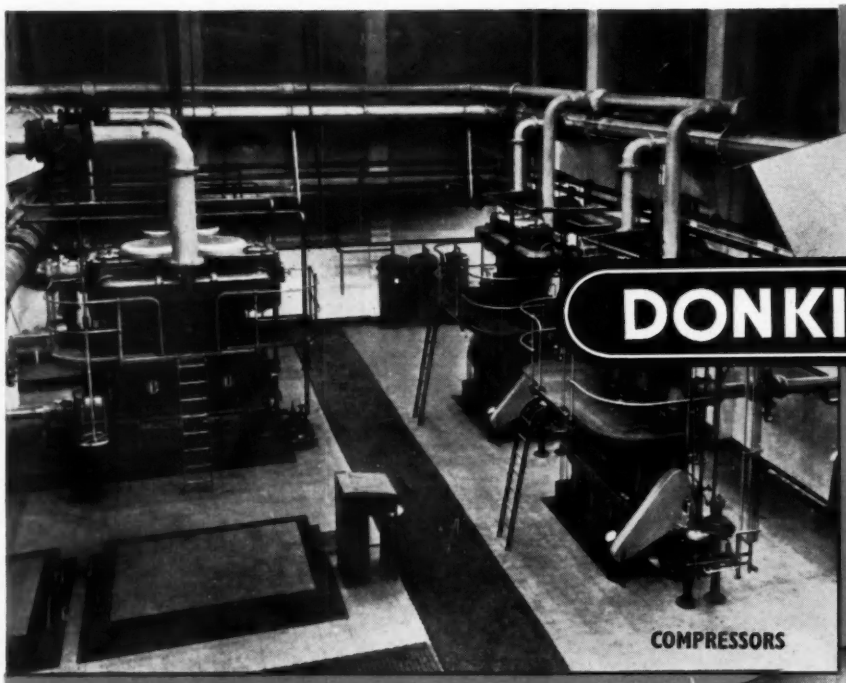

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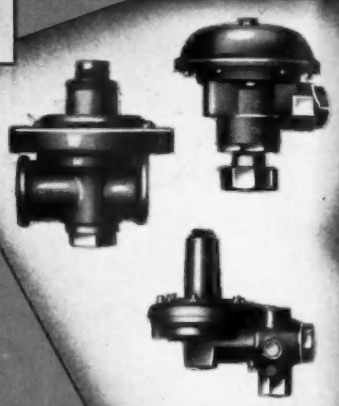

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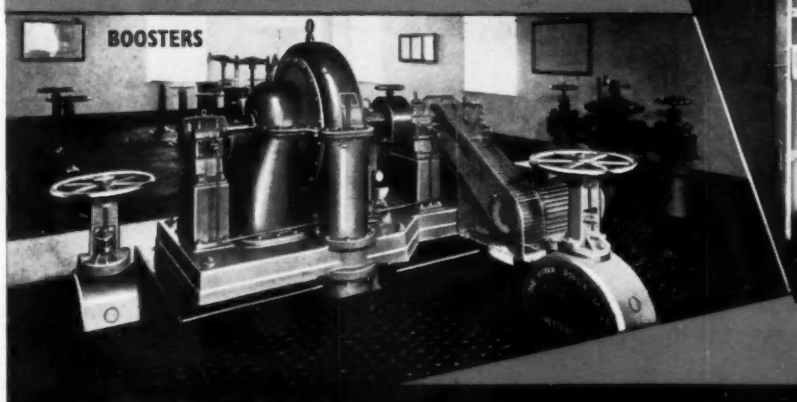

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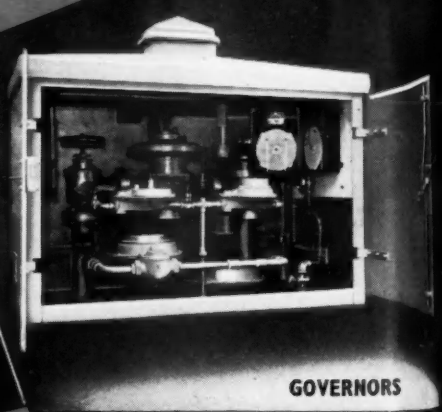

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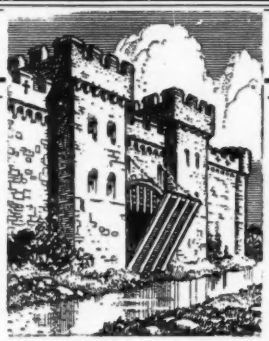

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Gas Journal

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CONTENTS

EDITORIAL COMMENT

Blueprint for a Fuel Policy - 159
Glorious Newcastle Colour - 160
Mere College - 160
Statistically Speaking - 160

CORRESPONDENCE

Comments on New Solid Fuels. From F. C. Dobson - 161

SPECIAL ARTICLE

Walsall: New Plant Multiplies Gasworks Capacity. By C. J. P. de Winton - 169

NEWS OF CURRENT EVENTS

Personal - 161
Obituary - 161
Diary - 161
Main Laid Under Hyde Park Without Disturbing Traffic - 162
Premier of Tasmania to Open H. & G. Water Gas Plant - 162
'The Story of Gas' and the N.E.G.B. - 162
Midland Juniors Tour Stewarts & Lloyds - 182
Purifiers Contract for Newton Chambers - 183
Busy Day for E. Scotland Juniors - 183

TECHNICAL RECORD

Walsall: Commissioning Procedure at the New Works. By G. W. Harvey - 177

PUBLISHERS' NOTICE, See Page 79, April 8, 1959

illustration by courtesy of H. E. Wingfie & Co.

something in common

They remind one of different worlds, the 1d. black postage stamp of 1840, and the modern T.G. meter. Yet, they *have* something in common—both are the products of true craftsmanship. First issued on 6th May, 1840, the 1d. black was printed by Perkins, Bacon & Co. from an engraving by Frederick Heath. The design was based on a watercolour by Henry Corbould from the City Medal engraved by William Wyon, and is presented as a fine example of the engraver's art. The T.G. meter epitomizes craftsmanship and the T.G. 'G' prepayment mechanism is accepted as the most modern precision movement on the market.

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Gas Journal

VOLUME 298. No. 4997 APRIL 22, 1959. 111th YEAR

Blueprint for a Fuel Policy

THE announcement in the House of Commons last week by Sir Ian Horobin, Parliamentary Secretary to the Ministry of Power, that a committee was to be set up to enquire into the possibilities of converting coal into chemicals, gas and oil, is of the greatest interest to the fuel supply industries.

What exactly is the significance of such an announcement and why was it made at this particular moment? The terms of reference of the new committee are to review the work done in recent years on the development of processes using coal as a raw material for the production of marketable products of a chemical, gaseous or liquid hydrocarbon type, and to recommend the direction in which future research and development should proceed and the type of organisation best suited to carry on such work. The statement went on to give the names of those who would serve on the Committee. This would seem to be a big step forward by the Government to meet the demands for greater utilisation of coal in this country without attempting to hold back the ever-increasing tendency to use the more conveniently handled refined fuels for ordinary heating uses in the home, in the factory or in the office.

We are naturally interested in the possibilities which the appointment of such a committee may have on the supply of refined fuels in the future. We have, in fact, pointed out on more than one occasion that in our view the rising standards of comfort throughout the population in these islands demands a method of house warming substantially less crude than burning raw coal. The use of refined fuels would comply with the Clean Air Act and give the housewife or factory manager heat on tap. We have also pressed the case that this refined fuel should be town gas, from whatever raw material it may be produced.

Is the appointment of this committee the result of pressure from the mining industry to encourage coal consumption in this country, to prevent stocks of coal mounting further, and the closing down of more of the less economic pits? This may well be so, but might it not be a preliminary stage towards the formulation of a national fuel policy? Such questions are difficult to answer without the full knowledge of the political implications.

A glance at the list of those who will serve on the committee indicates what the Minister of Power has in mind. Of the eight members, two are connected with the oil industry, one of whom, Dr. M. A. Matthews, represents the petrochemical industry; two are from chemical industry; the Member for Production of the National Coal, the Chairman of the Ministry of Power's Fuel Efficiency Advisory Committee, a chartered accountant, and Mr. W. K. Hutchison, Chairman of the South Eastern Gas Board, are the other members. There are also two assessors to assist the committee, one representing the Fuel Research Board and the other the Ministry of Power.

A study of the industries represented shows that heavy chemical industry is likely to take part in the developments envisaged. The production of an adequate quantity of suitable types of coal is essential, so also is the proper control of the national fuel economy, and the whole process must be run on economic lines. Mr. W. K. Hutchison's appointment fits into the general pattern, for not only does he represent the gas industry at high level, but as an eminent chemist he is likely to be of great assistance in putting over to the Ministry of Power the real significance of the processes now being developed in the Midland Research Station.

The terms of reference do not include solid smokeless fuels, which we think might be taken as significant. Solid fuels appear to be 'out' in long-term planning, though the N.C.B. may be planning their production in the short term. The solid products seem to be included in the rather vague term 'chemicals.' This might refer to the manufacture of chemical products from coal similar to the vast number of substances manufactured by the petrochemical industry. This latter industry is entirely postwar in growth and did not make its appearance to any extent until the great increase in oil refinery capacity in this country after the Second World War. Up till now, though the gas industry pioneered the production of ancillary products from coal distillation and the development of the by-product coke oven increased the quantities available, coal products have never been on a sufficiently large scale to make the impact on the public that the petrochemical industry has.

The increasing scale on which the oil industry continues to erect its refineries in Great Britain will tend to widen this gap between coal and oil products; in fact, it may even be questionable whether the distillation of coal tar for the finer products is economically possible. The burning of tar in steelworks reheating furnaces is a case in point.

The problem facing any committee concerned with the future uses of coal is formidable. Oil can do all the things coal can do, it can do them better and with less trouble, more cheaply and with the employment of less labour. Unfortunately (for us) it also carries the brand mark of being modern and is backed by excellent publicity from companies of international repute.

For the coal industry to make any appreciable effect on the very competitive but clearly expanding synthetic chemicals market, it must be able to produce a better product more cheaply and in equal abundance. This seems unlikely without a great deal of preliminary research both into types of possible substance and the chemical engineering problems of introducing new types of plant. Will this research development be paid for by the Government through the National Coal Board, or will one of the large chemical firms be entrusted with it? Will it be necessary for the Government to restrict the sale of oil or its products in this country to allow the new industry to develop?

The gas industry is clearly interested in the manufacture and sale of gas and as such wishes to develop means of production from any raw material. If gas is a by-product of other coal treatment processes in manufacturing chemicals or oil on a large scale, the industry will welcome the opportunity to make full use of it at an economic price.

Glorious Newcastle Colour

IN the appreciation of good industrial relations gas can fairly claim to be an enlightened industry. Nevertheless there is always room for improvement and it is always interesting to examine new methods designed to provide a further improvement. Thus far comparatively little use has been made of film—an expensive medium but one which can sometimes be justified by an extension of the old adage about a picture being worth a thousand words. The North Thames Gas Board has made perhaps half a dozen excellent magazine films on its activities for showing to employees on propitious occasions, but more recently the Northern Board has entered the field, utilising films as an extension of the annual report and showing them initially to a meeting of representatives of the 40 or so joint consultative committees, and subsequently to every unit in the area.

Last week we had a look at the second and latest film in the series, 'Our Board,' a 31-minute affair which covers progress in manufacture, distribution, sales, appliance development, and indeed, all major aspects of the Board's work. Considering that this is essentially a 'home grown' effort, the only professional aid being in the actual photography, the film must be classed as remarkably good and certainly a great improvement on its predecessor. It is always very difficult, and often not a little unfair, for anyone other than those 'in the family' to assess and perhaps criticise anything of this kind. We thought future films might well benefit from the exclusion of dialogue, a mixture of commentators, a determination either to use music properly or not at all, and, with respect, a great deal less of the Chairman. At the same time we thought that this film presented a very fair picture of a progressive organisation and must give the ordinary employee a sense of 'belonging' and a new conception of the way in which his efforts and those of his colleagues dovetail into the general plan.

Mere College

WHAT a fuss there has been over the North Western Gas Board's newly acquired college at Mere, Cheshire! Newspapers, in particular the *Daily Mail*, have made great capital out of the fact that at the moment the college is all-electric, including the kitchen facilities. So what? Why should not a gas board choose a building away from a gas main if it is convenient and economical in other respects? The trouble appears to have arisen because the Board did not put its cards on the table and, according to reports, allowed members of its Consultative Council to find out about the absence of gas by accident. This is interesting only because it is something of an event for the North Western Board to be caught on the wrong foot publicity-wise; there is no board, gas or electricity, with a better record for keeping out of trouble and achieving publicity of the best type.

Statistically Speaking

IT is pleasant to be able to record improved appliance sales, although the fact that this is due to the relaxation of hire-purchase restrictions means that our competitors are also benefiting. The October-December, 1958, results, which have just been released by the Gas Council, reveal that cooker sales were at an annual rate of over 840,000, 42% higher than in the corresponding quarter, and in the nine months there has been an increase in cooker sales of almost 16%. The high rate of sales has since been well maintained. Indeed, gas boards sold 73,597 gas cookers during February this year—26,618 more than were sold during the same month in 1958. This 56.6% increase follows a national co-ordinated cooker sales campaign—the first of its kind organised in February by the gas industry—organised to combat the usual downward trend of cooker sales in the early months of a year. As several boards extended their campaign beyond the end of February it is expected that final returns will show an even greater sales increase. During the quarter sales of space heaters were 74% higher, water heaters 61%, wash boilers and washing machines 21%. Refrigerator sales were more than five times as high as sales in the corresponding quarter of 1957.

It is extraordinary how gas sales maintain an almost complete *status quo* with domestic and industrial sales curves crossing and re-crossing like a paper chain! The fall in industrial activity and slightly warmer weather caused a 3% fall in total sales of gas during the October-December quarter, as compared with the previous year. Sales for the nine months ended December, 1958, were, however, ½% higher than for the same period of 1957. Sales to domestic consumers and to commercial and other consumers were increased by 1%, but sales to industrial consumers fell by 1%.

During the nine months there was a reduction of almost 6% in the manufacture of coal gas and of 1,188,000 tons in the use of coal as compared with the previous year.

Personal notes

MR. T. M. EDWARDS has been appointed Deputy Chairman of the Wales Gas Board to succeed MR. R. S. SNELLING, O.B.E., from May 1, as from which date Mr. Snelling has been appointed a part-time member of the Board. MR. T. MERVYN JONES has been re-appointed Chairman of the Board, and COUNCILLOR J. E. EMANUEL and SIR WILLIAM JONES, C.B.E., have been re-appointed part-time members.

M. BERNARD KUHN DE CHIZELLE, engineer at the National High School of Electrotechnics and Hydraulics, Grenoble, has been appointed Director-General of Gaz de France, in succession to M. GEORGES COMBET. Before nationalisation, M. Kuhn de Chizelle had been, successively, gas manager at Saint-Raphael, distribution manager of gas and electricity (industrial) in the Var and the Alpes-Maritimes, managing director of the Ste. Force et Lumiere at Grenoble, and finally director-general of the gas company at Lyons. He became director of the combined distribution of Electricité de France and Gaz de France and, in 1954, he was appointed joint Director-General of Gaz de France. M. Combet has been responsible for the technical side of the reconstruction of the gas industry in France over the last ten years and particularly for the realisation of the transmission of gas from Lorraine to Paris, for the layout and construction of mains for the transport and distribution of the natural gas from Lacq and for the development of underground gas storage at Beynes.

MR. W. A. D. BAKER has been appointed Physicist in the research laboratories of Sidney Flavel & Co., Ltd. Mr. Baker was educated at Alleyn's School and graduated with honours in physics at London University. In 1952 he joined the staff of the London Research Station of the Gas Council at Watson House, and was engaged in the investigation of problems relating to flues and ventilation, studying in particular the control of chimney ventilation in the laboratory and also in the field. Later work included research into the factors influencing the distribution of heat produced by solid fuel convectors, and the physical problems associated with measurements on, and sampling of, flue gases from such appliances. In 1956 he was awarded the degree of M.Sc. of London University for a thesis on the viscosity and thermal conductivity of gaseous mixtures. In his new appointment, Mr. Baker will be engaged on the development of space heating appliances, under the direction of MR. W. E. BENTON, Technical Director.

MR. HUGH TANNER has been appointed by the Scottish Gas Board Assistant Service and Sales Manager of the Alloa/Sterling group of the Central Division. Mr. Tanner has been the district manager at Auchterarder gasworks for 20 years.

MR. DUNCAN D. MELVIN, member of the Scottish Gas Board, has been elected by the Society of High Constables of Edinburgh as their Custodier. The activities of the Society—which was formed in 1611 for, among other purposes, the maintenance of law and order and tax-gathering—are nowadays mainly ceremonial, social, and charitable.

Obituary

MR. LAURIE TAYLER, of Thomas Potterton Ltd., has died aged 49. He began work in the gas industry as a door-to-door salesman. Then he joined Ascot Water Heaters Ltd. as a salesman where he stayed for 12 years, eventually becoming training officer. Mr. Tayler was deeply interested in the theory and application of industrial education. At the end of 1945, he joined Thomas Potterton Ltd., which was in the process of becoming part of the De La Rue group, and again he was a salesman. With his considerable technical knowledge, he was the obvious choice as training manager when the Potterton Training Centre opened in 1957. He began to produce instructional films in colour; writing, photographing, directing, editing and speaking the commentaries to them himself. One of his 'home-made' training films was selected, after his death, for the 1959 'Festival of Films in the Service of Industry' at Harrogate.

Diary

April 28. — MIDLAND JUNIORS: Staff Mess Room, Birmingham District, West Midlands Gas Board. Annual General Meeting followed by an address by Mr. C. E. Winsor. 6.30 p.m.

April 30.—NORTH THAMES G.C.C.: Caxton Hall, London. *Cancelled.*

May 1.—MIDLAND SECTION, I.G.E.: Hotel Leofric, Coventry. Annual General Meeting.

May 1.—INSTITUTE OF FUEL, SOUTH WALES SECTION: Cardiff: Annual General Meeting.

May 5.—NORTH OF ENGLAND, I.G.E.: Staincliffe Hotel, Seaton Carew. Annual General Meeting and Ladies' Day.

May 6.—THE SOCIETY OF INSTRUMENT TECHNOLOGY: Manson House, Portland Place, London, W.1. Annual General Meeting and Presidential Address. 5.30 p.m.

May 6.—MANCHESTER JUNIORS: Joint visit with Yorkshire Juniors to Petrochemicals Ltd., Carrington, near Manchester. Paper by Mr. W. E. Dobson, recently awarded Woodall-Duckham Scholarship.

Correspondence

Comments on new solid fuels

DEAR SIR,

I would, if I might, like to make some comments on your leading article, 'New Solid Fuels,' in your issue of April 8.

Merchants have increased their sales of gas coke very considerably compared with their sales before the war, due, no doubt, in great part to the co-operation between them and the gas boards. Indeed, in many gas board areas the sales by merchants of gas coke to consumers, collectively exceed those made direct by the gas board concerned, in spite of the latter's handsome showrooms and excellent salesmanship—an illustration of the public's confidence in merchants, the latter's ability to give good service, and their interest in the sale of coke.

The accusation that merchants have little sympathy with the difficulties of customers, is quite untrue of the great majority of merchants. On the contrary, they recognise that the customer must be completely satisfied with the gas coke which is supplied. They know that, although thousands of their consumers are satisfied with coke used in boilers and in many cases used in modern gas-fired grates, there is a great public dislike and prejudice of coke for use in the open fire. For corroboration of this information, please see 'The Social Survey on Domestic Heating' by P. G. Gray, Table 5, p. 7, issued by the Central Office of Information and, more recently, the 'Survey into the Domestic Use of Coke,' Bulletin No. 14, issued by the Women's Advisory Council on Solid Fuel.

Many wise gas boards have recognised these facts and have taken steps to produce a more reactive coke more acceptable to the public for open fire consumption. All power to their energy and progress. Let gas boards give merchants the right fuel and we shall sell it for them and, as is usual, in competition with them.

It seems rather ironical that Sebrite should be chosen to make the subject of an attack upon coal merchants in general, because my own firm have been closely co-operating with the South Eastern Gas Board in the supply of peat for the manufacture of this fuel from the inception of the experiments.

Lastly, may I say that many of your readers must have deprecated the words used in your article against the very traders from whom all possible co-operation is desired by, and necessary to, the gas boards, and must have felt disappointed at your departure from the forceful but fair-minded and balanced statements which are usual in your journal and which contribute so much to its popularity.

Yours faithfully,
F. C. DOBSON.

President,
Coal Merchants' Federation
of Great Britain,
London, W.C.1.

MAIN LAID UNDER HYDE PARK WITHOUT DISTURBING TRAFFIC

EARTH boring equipment was used by the North Thames Gas Board's contractors, Wm. Press & Son Ltd., to lay a new 24-in. gas main under the East Carriage Road in Hyde Park, London, near the Achilles statue.

To have used 'cut and cover' methods would have taken 4½ weeks to cross the 180-ft. roadway and traffic travelling from Oxford Street to Victoria would have been badly blocked. The crossing was made in two days without anyone being inconvenienced.

The new main is being laid in connection with the preliminary work being done to allow operations to start this autumn on the Hyde Park Corner road development scheme by which east-west bound traffic will travel underground from Hamilton Place to Knightsbridge, and to make this possible all public utility services will have to by-pass this stretch of roadway.

The new gas main will enter Hyde Park in Knightsbridge, cross Park Lane and Piccadilly into Green Park, cross Constitutional Hill, run through part of Buckingham Palace gardens, cross Grosvenor Place to join an existing main in Wilton Crescent.

The discovery of sand at the place of boring, instead of the usual London clay, compelled the contractors to sheet pile the East Carriage Road to prevent it collapsing into the 15-ft. deep trench which had to be dug to accommodate the diesel driven boring machine. This machine, one of two in this country, and manufactured in America, pushes 35-ft. lengths of 30-in steel tube at more than 5½ in. per minute through the hole as it is bored by the auger, all spoil being simultaneously removed by a suitable helix.

Each length is electrically welded on to succeeding lengths *in situ* after the machine has been lifted out of the way. The procedure is then repeated. Through this tube representing a liner the 24-in. steel gas main will be laid, the annular space so formed filled with cement and the whole cathodically protected by sacrificial magnesium anode. The Board is collaborating with the Metropolitan Water Board to install a similar sleeve at 6-ft. centres to carry a water main also made necessary by the road developments.

Above: *The helix section of the earth auger seen in the 35-ft. length of 30-in. steel tube ready in position.*

Right: *The diesel-driven boring machine in readiness in the trench waiting to be moved into position. The sheet piling can be seen in the background.*

Premier of Tasmania to open H. & G. water gas plant

THE Premier of Tasmania, Mr. E. E. Reece, will officially open Launceston's new carburetted water gas plant in June. The plant is the first of its kind in Tasmania and was designed and built by Humphreys & Glasgow, Ltd., of London, for the Launceston Gas Company.

The plant is designed to produce 800,000 cu.ft. of gas per day, with a heating value of 500 B.t.u. It will supplement the company's existing coal carbonising plant and may eventually replace it. Although it is usual to use coke for water gas production, a limited range of non-caking coals—such as that from the Cornwall Mine near Launceston—can be successfully gasified.

Local coal is not suitable for carbonising, however, and the existing carbonising plant uses coal imported from New South Wales. As soon as the output of the works justified additional plant, the Launceston Gas Company placed their order for carburetted water gas plant in order to use Cornwall coal and reduce the company's dependence on imported fuel. The gas made in the new plant has a calorific value of about 330 B.t.u. and is enriched with gas oil to bring it to the value of the gas which it will supplement.

The new plant began operating this month.

Launceston is the second largest town in Tasmania, with a population of 49,000. It is an important manufacturing centre for aluminium, clothing and furniture.

ONLY ONE TENDER WAS DIFFERENT

THE fact that five of six firms which tendered for the supply of coal to Belfast gasworks quoted the same handling charge led to remarks about restrictive practice at a meeting of the Corporation Gas Committee.

Alderman Robin Kinahan said it could not be merely a coincidence, and he told the committee he was going to look into the matter. His viewpoint was supported by several other members.

The committee was considering offers of coal for the year ending in March next. The same six firms which supplied the Department's requirements last year tendered again and their offers were accepted.

Four of the firms are in Belfast and the other two in Glasgow and Birmingham.

The one which quoted a lower handling charge than the rest was Alexander Russell & Co. (Glasgow) Ltd., who gave a figure of 2s. 9d. per ton compared with 2s. 10d. quoted by the other five.

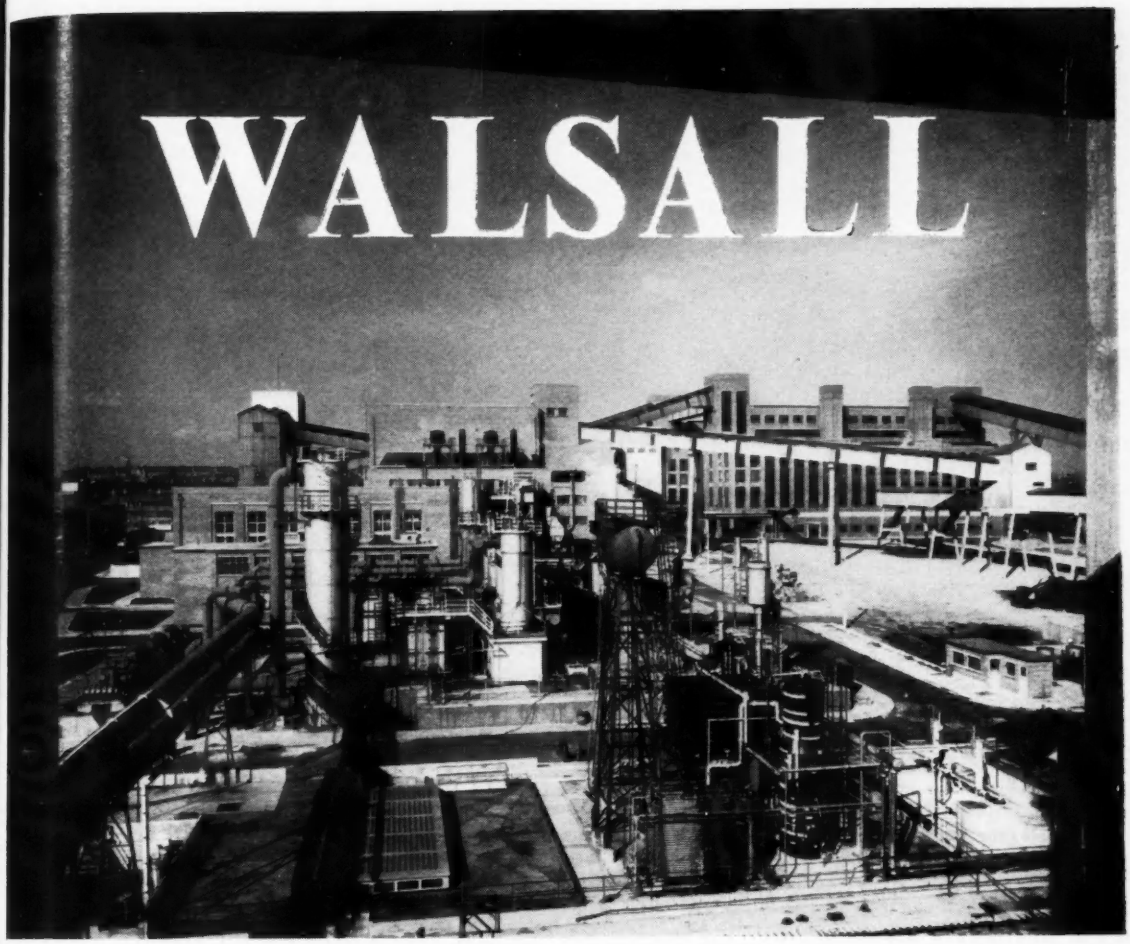
The Department receive about 50 different varieties of coal, each with its own individual cost, according to port of loading, size of cargo and F.O.B. price.

'The story of gas' and the N.E.G.B.

DR. R. S. EDWARDS, Chairman of the North Eastern Gas Board, proposing a toast to the branch at the annual dinner at Hull of No. 7 Group, North Eastern Gas Board branch of N.A.L.G.O., said the Board were going to put over the story of gas more powerfully to the public than had been done in the past. 'For this we must have good team work,' he added.

'The relationship between N.A.L.G.O. and the board remains friendly and sincere,' continued Dr. Edwards. 'I have every confidence that in the exciting years ahead of the gas industry we are going to get ourselves ready to take advantage of the wonderful future.'

Responding, Mr. P. F. Kirby, Branch President, said he felt that the whole of the progress made in the industry, particularly in the Hull area, was due to loyalty and co-operation on the side of the management and the staff.



New plant multiplies gasworks capacity

THE commissioning of the new plant at the Pleck works at Walsall in Staffordshire has increased its potential gasmaking capacity from 4.75 mill. cu.ft. per day to a total of 18 mill. cu.ft. per day. The site, covering an area of 22½ acres, is in a built up area and every precaution has been taken to minimise the effects of dust and possible air pollutants. The works has in fact been completely rebuilt and the most modern means of mechanical handling for coal and coke installed.

The new gasmaking plant—comprising four benches of 24 Woodall-Duckham lambent-heated continuous vertical retorts, and two Humphreys & Glasgow carburetted water gas plants—replaces a carbonising plant of 30 W-D. continous vertical retorts with a capacity of 4 mill. cu.ft. per day and a small Humphreys & Glasgow plant of .75 mill. cu.ft. per day. During reconstruction it was necessary to maintain an uninterrupted supply of gas from the old works.

Gas was first introduced for public lighting in Walsall in 1824, and the

By

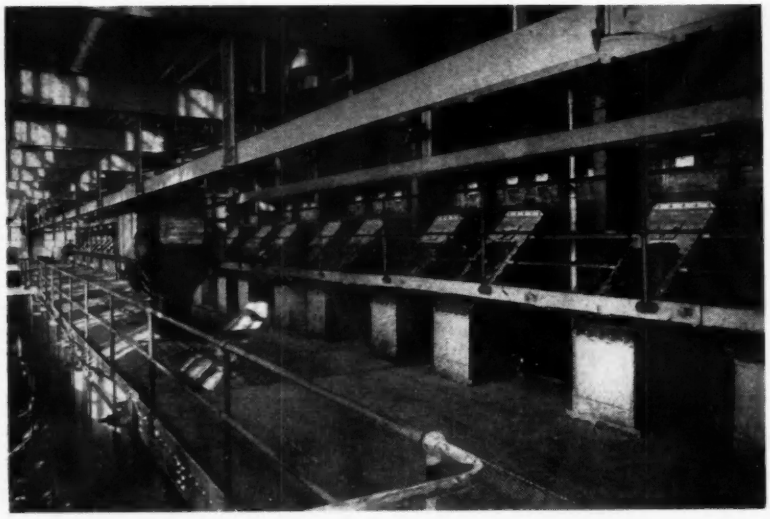
C. J. P. de WINTON

Technical Editor.

first gasworks erected in 1826 on a piece of land in Lichfield Street. The authorised capital of the first undertaking was £5,000, and the population within the borough was then only about 12,500. In 1849-50 the town's own gasworks was built at Wolverhampton Street and the old one in Lichfield Street was dismantled.

In 1859 the Birmingham and South Staffordshire Gas Light & Coke Company also brought a supply of gas to Walsall. In 1875 the rights of this company were acquired by the Birmingham Corporation and, two years later, the gas supply rights within the borough were purchased from Birmingham in pursuance of the Walsall Gas Purchase and Borough Extension Act of 1876. Under these powers a works was built on the Pleck site. In 1895 the plant at Wolverhampton Street was shut down and subsequently dismantled, a portion being retained for use as a distribution and high pressure station only.

Before vesting day the Walsall Corporation Gas Department had decided to install a new 6 mill. cu.ft. per day



Interior of the retort house at producer charging level. A battery of step grate producers can be seen in the left background together with the overhung charging skip. Producer gas connections to the retorts appear on the right.

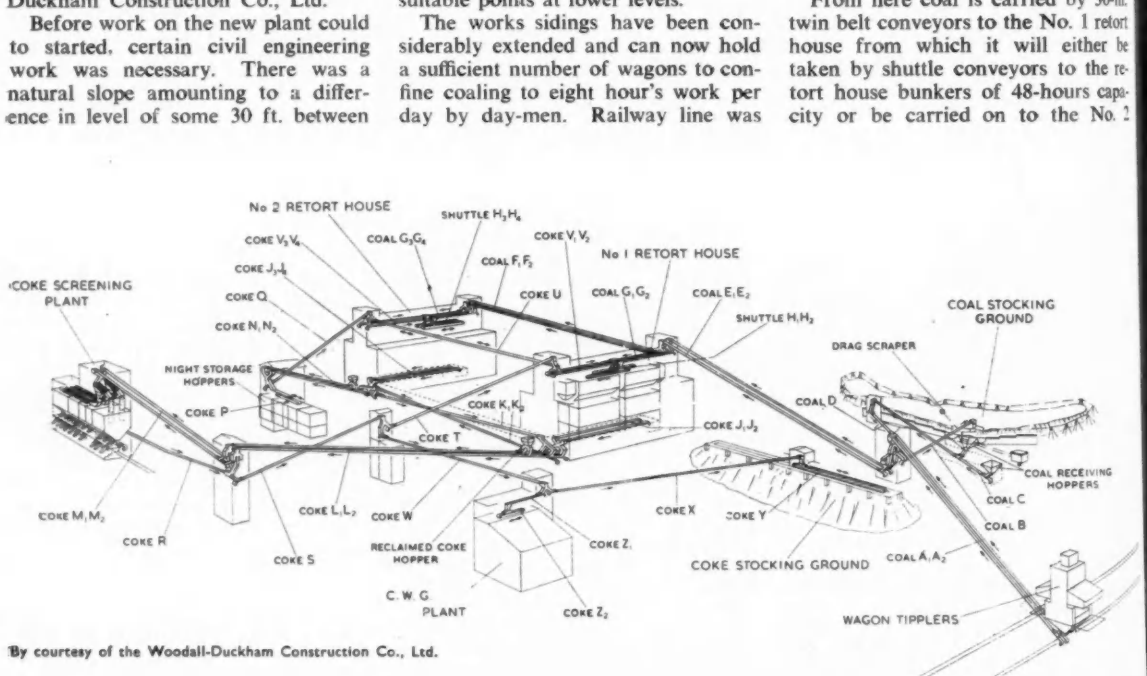
continuous vertical plant with new railway sidings and other equipment but the work had not been started. In 1950 the West Midlands Gas Board, after reviewing the future demands for gas in Walsall and surrounding districts, decided that the Pleck site should be developed to its maximum capacity. The chief contractors for the new plant, which includes the coal and coke handling plants and the works' sidings, are the Woodall-Duckham Construction Co., Ltd.

Before work on the new plant could to started, certain civil engineering work was necessary. There was a natural slope amounting to a difference in level of some 30 ft. between the old retort house and the main railway lines. To compensate for this and to make full use of the available area, four terraces were constructed and individual plant units so arranged that coal should be brought up from the sidings at the lowest level to the retort houses on the top level or to stock at an intermediate level, and liquids produced by the plant for storage or despatch, or effluents for disposal, should flow by gravity to suitable points at lower levels.

The works sidings have been considerably extended and can now hold a sufficient number of wagons to confine coaling to eight hour's work per day by day-men. Railway line was supplied by Thomas Summerson & Co. Ltd. of Darlington. The full wagons are run down by gravity to twin Rotaside tipplers, capable of handling wagons with a net load of 21 tons of coal. Each tippler is equipped with a weighbridge by means of which the wagon is weighed both full and empty, so that an exact account of the coal tipped can be kept. The tipplers are housed under a special dusthood to prevent coal dust from causing a nuisance in the immediate vicinity. The coal is discharged into a receiving hopper of 50 tons capacity fitted with twin outlets, from which it is fed by vibrating feeders on to twin 36-in. belt conveyors, each of a capacity of 150 tons per hour and both of which can be used simultaneously.

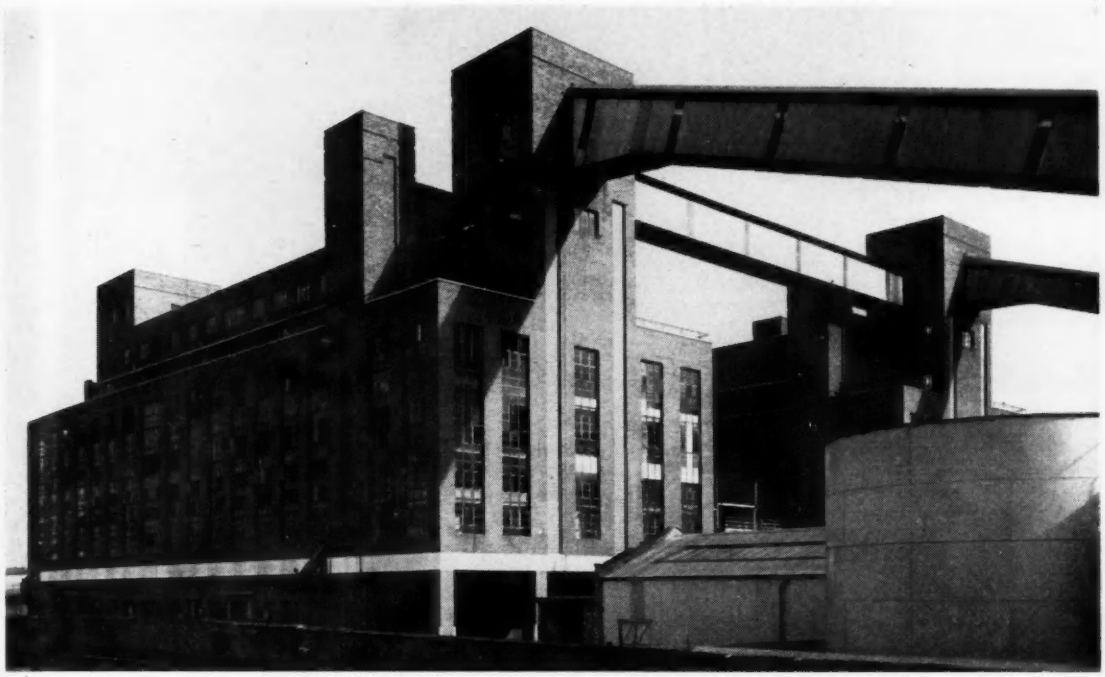
The transport of coal and coke is a feature of this works and a very complete system of belt conveyors has been installed by which coal can either be carried direct to the retort house bunkers or put into stock. Stocking or recovery from stock is by means of a drag scraper of 4¼ cu. yards capacity capable of handling 150 tons of coal per hour. The stocking ground will hold 27,000 tons or about six weeks supply. At the No. 1 transfer tower from which coal can be switched to or received from stock, is installed a single-roll British Jeffrey-Diamond coal breaker of 150 tons per hour capacity. This can be by-passed when not required.

From here coal is carried by 30-in. twin belt conveyors to the No. 1 retort house from which it will either be taken by shuttle conveyors to the retort house bunkers of 48-hours capacity or be carried on to the No. 2



By courtesy of the Woodall-Duckham Construction Co., Ltd.

Perspective drawing of the coal and coke handling plant. The route of the coal can be traced to its various destinations from the tipplers and the various routes open to coke from and to the retort house can be clearly seen.



A view of the retort houses from across the canal at the top end of the works. The great expanse of window space can be clearly seen. The small tower to the left centre contains the lift shaft and the connections of the conveyor system show how coke can be brought from either coke grading plant to both houses if required.

retort house by similar twin conveyors to storage bunkers of similar capacity and fitted with similar handling gear.

At the base of the retorts, extractors pass the coke to cast iron auxiliary hoppers of about two hour's working capacity at normal throughput. From hand-operated, water sealed discharge doors, coke is guided by hand-operated travelling coke chutes on to one of two 20-in. belt conveyors working in a trench below the retort house floor level, and travels at the rate of 40 tons per hour to the coke grading and screening plant. The coke can be brought simultaneously from both retort houses.

The new screening plant with a storage capacity of 600 tons will grade to 2 in. and over (150 tons), 2 in.-1¼ in. (180 tons), 1¼ in.-¾ in. (150 tons), ¾ in.-⅜ in. (60 tons) and to below ⅜ in. (60 tons). Provision is made on either side of the plant for filling railway wagons or road lorries and bagging machines have also been installed. Debreezing screens have been fitted to all graded coke chutes.

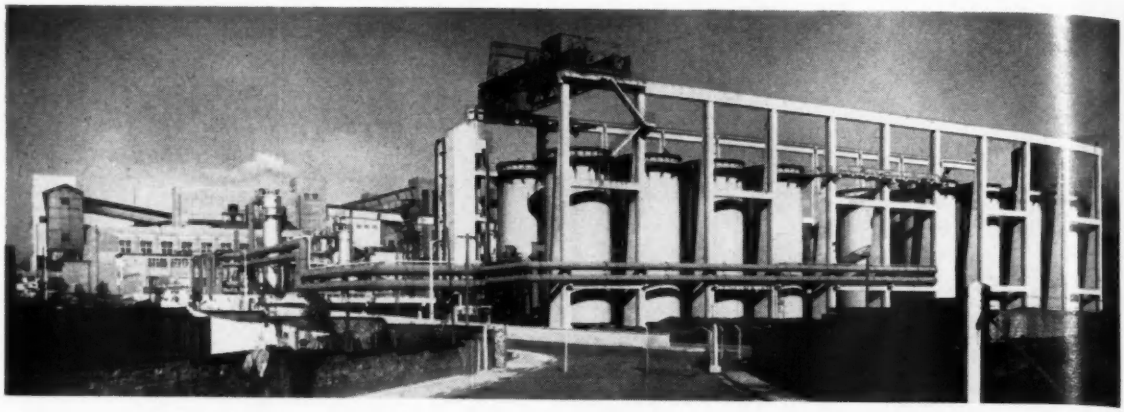
The old coke screening plant, with a total storage capacity of 250 tons, a reinforced concrete structure and part of the old works which has been dismantled, has been retained for screening coke from No. 2 retort house. Alternatively, this coke may also be passed to the new screening plant.

Coke may also be stocked outside, near No. 1 retort house. About 3,700 tons may be held here. Coke from the new screening plant is brought by belt conveyor to the No. 2 transfer tower, at which point also, run-of-retort coke from the retort house passes on its way to the screening plant. From this point a 30-in. belt conveyor runs back to the retort house carrying producer fuel or coke for retort filling and a second carries coke to a third transfer tower from which it can pass either to the carburetted water gas plant coke bunkers or to the outside stock. Here a reinforced concrete structure supported on legs, manufactured by Peter Lind Ltd., carries a transverse 30-in. conveyor which distributes the coke evenly over the stocking area.

A view of the mimic diagram in the No. 1 retort house showing by means of red and green lights the route of material being carried on the conveyor system. By pressing a switch, the foreman lights up all indicator bulbs to test for lamp failures. (Acknowledgments: West Midlands Gas Board photograph.)

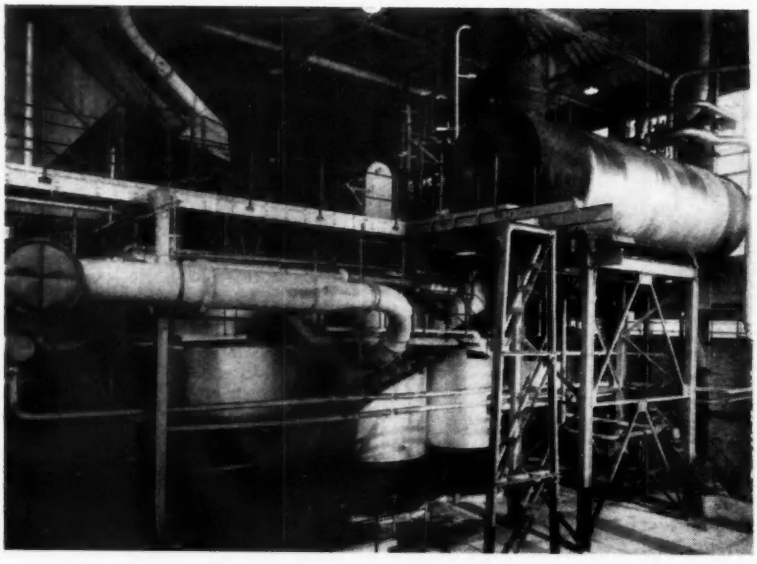
In this way any grade of coke, including run-of-retort coke, can be transported back to the retort house, carried to the water gas plant or stocked in the outside stocking space. Larger stocks may be held outside the works area. Coke from the works stock is recovered by the use of Chaseside shovels, transferring it to a recovery hopper on the run-of-retort belt conveyor where it emerges from the No. 1 retort house.

In the No. 1 retort house is a mimic diagram in red and green lights, supplied by Electroflo Meters Co., Ltd., showing what belt conveyors are running, and the route being taken by any material being carried by them. The conveyor drives are by squirrel-cage electric motors and, where it is warranted, hydraulic couplings have been installed. The sequence starting of all motors is used and minimum belt speed where hydraulic couplings are installed, below which the motor is switched off, is also included as a safety device. Motors may be stopped by wire-cable operated switches running parallel to the conveyors themselves.



The tower purifier plant. The reinforced concrete gantry built on two sides of the plant carries the overhead crane used for lifting the lids and extracting the oxide containers when charging or discharging a tower. In the left background can be seen the exhauster house with the No. 1 coke grading plant on the extreme left.

The interior of the exhauster house, showing on the left, the three machines for the coal gas streams. The electrically driven standby can be seen on the extreme left. The two steam driven machines for the c.w.g. stream are on the right. The spacious, lofty design of the building, the ample window space and the generous grouping of the machines are immediately apparent.



The interior of the water gas plant showing one set of gasmaking vessels. A waste heat boiler can be seen on the right on the operating platform together with one of the automatic operators.

The retort houses, identical in appearance, are attractively-designed brick buildings with the greater part of the walls divided up by windows, extending almost to their full height. This has the effect of reducing the otherwise massive appearance of a building of this type as well as providing adequate lighting inside the building itself. The two chimneys from the benches inside are an integral part of the design.

In each retort house there are two benches each of 24 82-in. lambent-heated continuous vertical retorts with a combined output of over 6 mill. cu.ft. per day of coal gas of a calorific value of 450 B.t.u. per cu.ft. The retorts are in double line and each is controlled independently. Each bench is divided up into six sections of four retorts to facilitate repairs. Producer gas for retort heating is supplied by batteries of hand-cleaned step grate producers on the retort floor level. Producer gas from any one producer in the battery can be taken to any retort of the corresponding bench. Producer fuel, mainly No. 4 coke, is stored in overhead bunkers with a capacity of 24 hours running and is charged to the producers by means of hand-propelled, top-hung charging skips, one skip serving each producer battery.

There are three waste heat boilers in each retort house, one for each bench and one standby. The Davidson Sirocco fans providing induced draught are electrically-driven, steam turbines supplied by Greenwood & Batley Ltd., being kept as standby. All steam used on the works is raised by waste heat boilers both in the retort house and at the carburetted water gas plant. No solid fuel boilers have been installed. Steam mains were supplied by Stewarts & Lloyds Ltd.

A water softening plant employing lime milk, soda ash and sodium aluminate, supplied by the Necker Water Softener Co., Ltd., is housed in a

building situated between the two retort houses. Steam-driven feed pumps supply softened water to the waste heat boilers—consisting of six in the retort house and three in the c.w.g. plant—and also to three c.w.g. generator jackets. The softening plant has a nominal capacity of 10,000 gal. per hour when dealing with South Staffordshire water.

Water is received from the condensers at 120°-140°F. and is stored in a raw water tank of 10,000 gal. capacity. Softened water enters a buffer tank at floor level from which it is pumped to an overhead water tank of 20,000 gal. capacity. The six retort house boilers are fitted with continuous blow-down, the heat from which is recovered at the deconcentrator at the softening plant reaction tank. There is also an emergency supply of town water. In addition to the softening plant, there are two sets of water conditioning equipment, one set for the three waste heat boilers in each retort house.

The gas leaves the retorts through liquor sprayed off-takes and enters the collecting main running alongside each retort bench. These mains are of welded construction and are arranged to fall towards the centre of the house to form an overflow for tar and liquor. Liquor sealed valves isolate each retort when required. The pressure in the collecting main is controlled by four electrically-operated Askania governors, two in each retort house, working 15-in. butterfly valves in the foul mains.

The gas then passes to the hot gas detarrers, consisting of four Holmes-Elex electrostatic detarrers, working at 33 kV. Each detarrer has a capacity of 4 mill. cu.ft. per day working at an efficiency of 99.5 ± 5%. Normally, two operate for each retort house, though in an emergency one per retort house can be used at a lower efficiency. Gas mainlaying in the works was carried out by Whittaker Ellis Ltd. and E. E. Jeavons & Co., Ltd., and cast iron pipe was supplied by the Stanton Ironworks Co. Ltd.

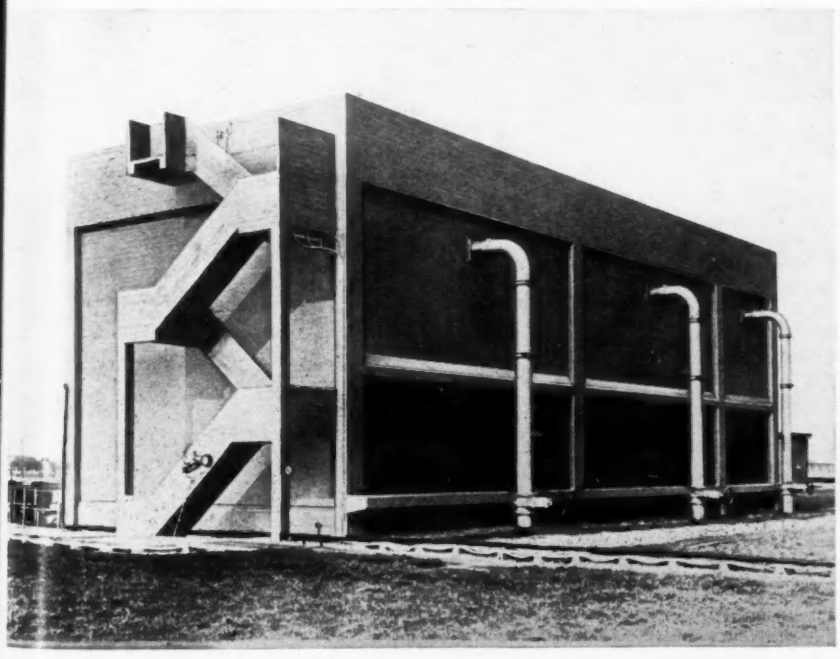
From the detarrers the gas passes through the primary coolers to the exhausters.

There are three Holmes-Connersville exhausters, each of 6 mill. cu.ft. per day capacity and each capable of dealing with the gas from one retort house. The two normally in service are steam driven with the electrically driven machine as a standby. In addition there are two steam-driven, 6 mill. cu.ft. per day Holmes-Connersville machines, one standby, for carburetted water gas.

In the exhauster house, too, which is a spacious, well-designed building, are the gas compressors. They consist of two vertical, steam-driven, Bryan Donkin machines with a capacity of 100,000 cu.ft. per hour operating at 25 p.s.i., and they supply the high pressure main to Bloxwich and Great Barr.

Duplicate Holmes - Connersville compressors of 150,000 cu.ft. per hour capacity, operating at 5 p.s.i.—one an electrically- and one a steam-driven machine, supply the Aldridge area and the trunk main extensions to West Bromwich.

In the exhauster house building, but separated from the machinery room, is the works central control room, where all major items of information on gas temperatures, pressures, volumes, etc., are made available. The stocks of town, canal and boiler feed water are indicated here, while safety devices give immediate warning of the failure of any important machine. In the control room the hourly statistics of gas made, gas stocks and weather reports are collected from all other works in the Walsall Division and passed by teleprinter to the West Mid-



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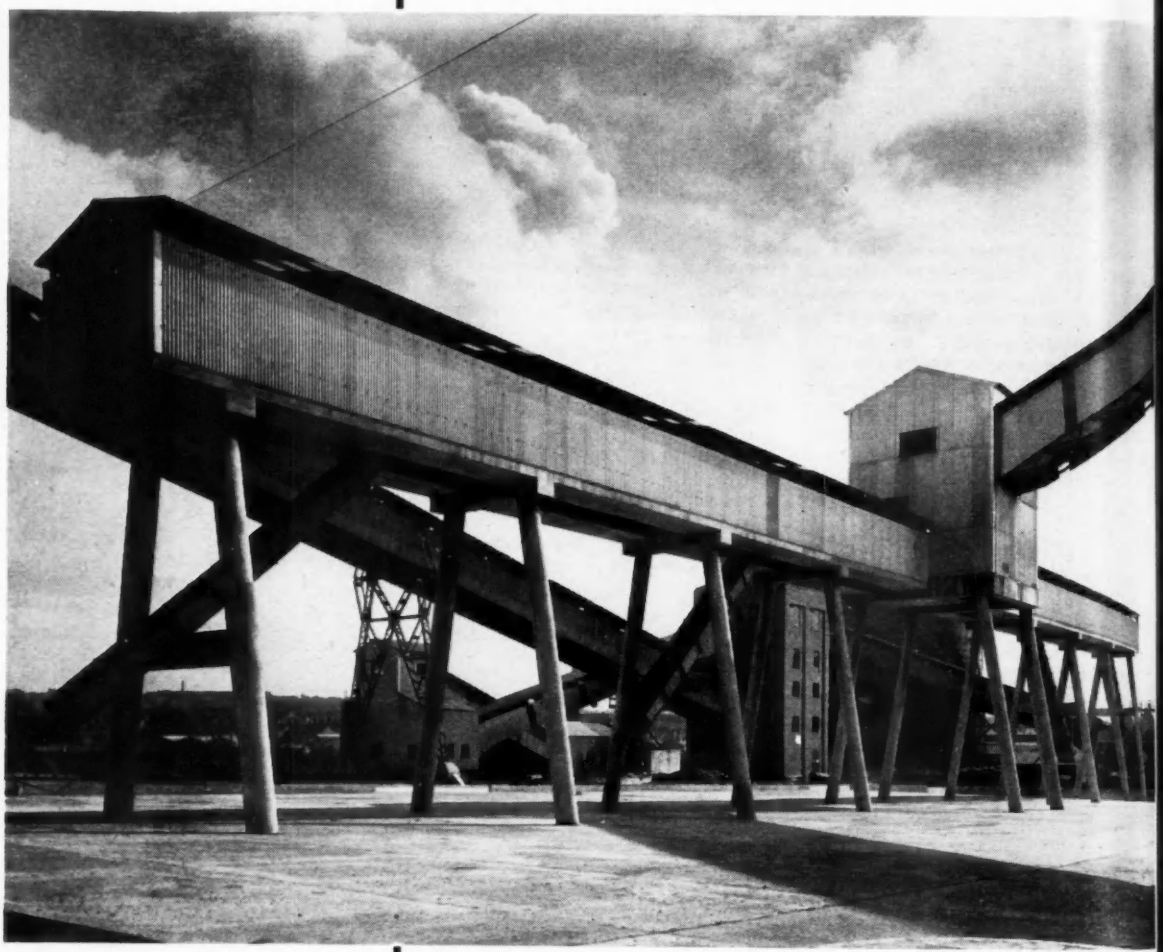
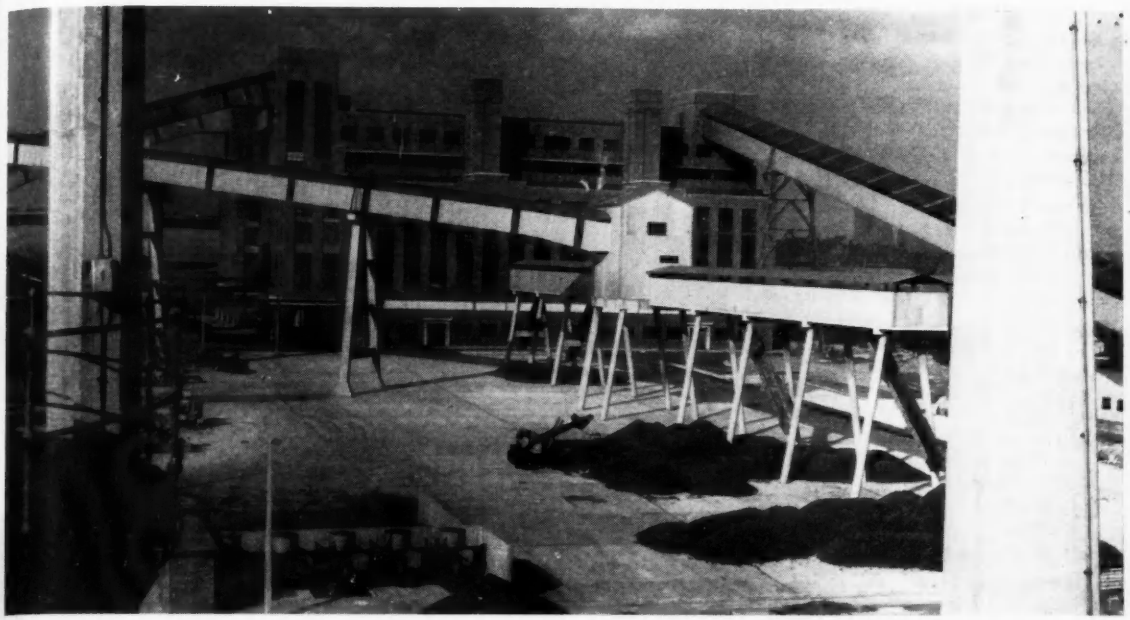


The illustration shows coke conveyor supports constructed for Woodall-Duckham Construction Company Limited at the Pleck Gas Works of the West Midlands Gas Board . . . . . Walsall

PETER LIND & COMPANY LIMITED

LONDON



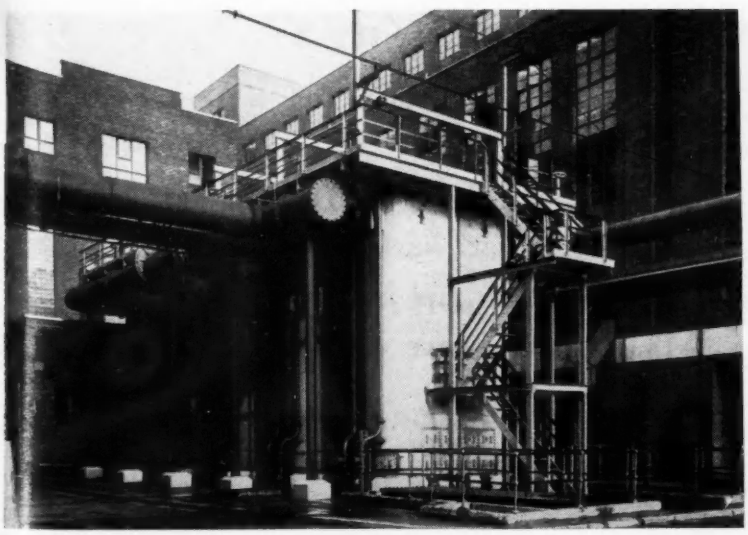
A view of the coke stocking ground within the works, with the retort houses in the background. The conveyor for distributing the coke over the available area housed in the reinforced concrete structure standing on concrete legs, appears in the centre. The conveyor systems for coal and coke to the retort house, with the two chimneys integral with the retort house structure are also seen.

land Board's central control at Birmingham.

On the ground floor are the works chemical and testing laboratories, the Fairweather calorimeter room and the Gas Examiner's testing laboratory.

From the exhausters the gas passes to the remainder of the ancillary plant, which has been supplied by W. C. Holmes & Co., Ltd., of Huddersfield, and consists of secondary condensers, cold gas detarrers, naphthalene washers, purifiers and station meters. The cooling tower was supplied by the Davenport Engineering Co., Ltd.

The gas from the exhausters enters in two separate streams, though the capacity of the plant is big enough to take the combined quantity of the two coal-gas streams through any one part of the plant if needed. An unusual feature is the provision of a Holmes-Connersville meter for each stream of unpurified gas as well as for the purified gas entering the holders.



The five primary condensers located between the two retort houses.

There are six meters altogether; one to measure blue water when required, two to measure unpurified coal gas, two measuring purified gas and one measuring the c.w.g. stream. In this way the thermal loss due to purification can be measured.

The gas then passes to the purifiers, situated at the lower end of the works near the sidings. They consist of two streams of six towers, each containing 14 steel trays holding 25 tons of oxide. An unusual feature of the plant is that the 50-ton crane used for handling the lids and the oxide trays runs on a reinforced concrete gantry 80 ft. above ground instead of the more usual Goliath crane mounted on steel girder work. The reason for this was the shortage of steel at the time when the plant was built and therefore need for some other material for its construction.

The gas storage capacity at the works is some 2 mill. cu.ft., but as an extension to the works capacity, two 6 mill. cu.ft. holders have been built at the James Bridge holder station three-quarters of a mile away, by Clayton Son & Co., Ltd., of Leeds. Gas boosting plant was supplied by James Howden & Co., Ltd., and George Waller & Son, Ltd.

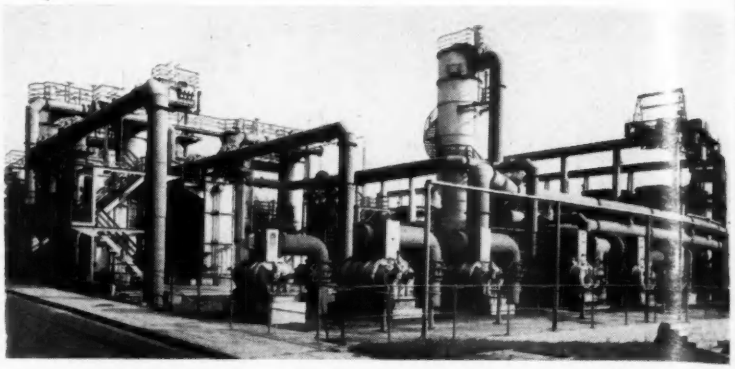
The carburetted water gas plant, designed and built by Humphreys & Glasgow Ltd., consists of two sets, each of a daily capacity of 3 mill. cu.ft., making gas of a c.v. of 450 B.t.u. per cu.ft.

Each set has a self-clinkering generator, a checkered carburetter, a waste heat boiler, and automatic charging from overhead bunkers, and is controlled by mechanical automatic operation. The relief holder has been supplied by R. & J. Dempster Ltd., of Manchester.

In the building housing the plant enough space has been provided to install a third set at some future date and a passenger lift has been included. Humphreys & Glasgow Ltd. have incorporated their high peak equipment, which increases the output of the plant by some 30% to meet peak demands. During their installation it was considered that the sets might have to operate on heavy oil instead of gas oil, so they were designed for this purpose. Now, however, they are being converted to use light distillates, a conversion which will increase the plant's basic capacity by about 25%.

Incorporated in the installation is a dust collecting plant manufactured by Air Control Installations Ltd. Dust from the coke chutes and chargers is extracted by a Rotoclone exhaust plant, which also handles the dust discharged from the Platt-Daniel grit collectors, forming part of the chimneys, and dust collected from a built-in vacuum cleaning system.

There is a comprehensive system of underground wells of both reinforced and prestressed concrete construction for the storage of tar and liquor. Foul liquor, diluted to an appropriate strength, is sold for spraying on agricultural land as a fertiliser. So successful has this become that almost 2 mill. gal. a year are now sold from this works for this purpose.



The six station meters at the exit end of the ancillary plant. Reading from left to right: the b.w.b. meter, the two unpurified coal gas meters, the two purified gas meters, and the c.w.g. meter. The tower purifiers appear in the right background.

Weak liquor is circulated through the ammonia washers to raise its strength and is finally passed to the concentrated ammonia plant supplied by Newton Chambers & Co., Ltd. Here a solution containing 22% ammonia is produced for disposal to the chemical industry. Crude tar from both the carbonising and c.w.g. plants is pumped from storage wells to canal boats and road tankers for sale to the Midland Tar Distillers Ltd.

The new works include a welfare block providing many amenities. Each employee has his own locker in both the clean and the dirty clothes rooms and there are good toilet and ablution facilities. Similar accommodation is provided in the retort houses and c.w.g. plant for shiftmen. Canteen and recreation rooms are in the main welfare block.

PHOTOGRAPHS of Walsall works published in this issue—and of the Isle of Grain plant, published last week—were taken for us by the *Gas Journal* Staff Photographer

Stephen Tennant, A.R.P.S.

The quality of these illustrations is self-evident and is the result of long experience in photographing gas plant. The same know-how is available to contractors and gas boards, since Mr. Tennant has a roving commission and can accept photographic work in most parts of the country. He specialises in progress shots and in plant photography for publicity purposes. For further details please contact

WALTER KING PHOTOGRAPHY

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WALSALL:

Commissioning procedure at the new works

IT became apparent soon after vesting date that in order to meet the ever increasing demand for gas in the West Midlands Gas Board's central area, new carbonising plant must be built without delay. It came to the notice of the Board that the North Thames Gas Board had materials on order for a retort house intended for Romford, which had been ordered before nationalisation, and was now surplus to requirements. It was decided therefore to take over this plant for Walsall as the first of two new retort houses, and to pass the 6 mill. cu.ft. per day of gas which would result, through the old ancillary plant. At the time, this plant was dealing with 3½ mill. cu.ft. per day of coal gas and 1 mill. cu.ft. per day of c.w.g. from existing gasmaking plant.

The plant was typical of that on many works, with bits and pieces added here and there and everywhere, together with a mass of mains and valves.

It was finally decided:

(a) To install a new steam driven exhauster of 6 mill. cu.ft. per day capacity. This machine would eventually become the steam exhauster for the future c.w.g. stream, since the c.w.g. plants were one of the final projects.

(b) To install another second hand Livesey washer.

(c) To split the stream on the outlet of the electrostatic detarrer into three separate streams; No. 1 stream through a Livesey washer, a rotary ammonia washer and through four of the large box purifiers and one large catch box; No. 2 stream through a Livesey washer, a rotary ammonia washer and the remaining four large box purifiers and the remaining large catch box; No. 3 stream being the c.w.g. stream, to be made into a coal gas stream, the connections at the two catch boxes being altered to give six rotating boxes instead of four rotating boxes and two catch boxes. This third stream would then consist of a Livesey washer, a rotary ammonia washer and six purifiers.

(d) The three streams to combine at the outlet of the purifiers before passing through the benzole washer which was to be converted to a zinc acetate washer.

The Connersville meters were adequate to deal with the intended load. These alterations were proceeded with at the same time as No. 1 retort house was being built.

By March, 1955, No. 1 retort house was ready for gas making. The five primary condensers were completed and No. 1 stream main had been laid up to the new exhauster house. Nos. 1 and 2 condensers only were required, Nos. 4 and 5 were to deal with the future retort house, No. 3 being a standby for either stream. A tee connection had been made to connect this stream with the 6 mill. cu.ft. per day exhauster installed in the old exhauster house.

On March 23, 1955, the retorts were coaled, with the hot gas detarrers bye-passed. When the gas was rich enough, the newly installed exhauster was started up, working in conjunction with the old exhauster from the old retort house. As the make of gas increased, from the new retort house, the make from the old was reduced progressively because of the loading on the purification system.

The inlet mains from the old retort house and c.w.g. plant to the old exhausters were disconnected in order that purging could proceed. The old exhausters were retained as standby to the 6 mill. cu.ft. per day machine. The old inlet mains were purged with a portable purging machine to the wash box at the old c.w.g. plant and as far as the hydraulic mains in the old retort house. The No. 2 retort house could now be built after demolition of the old retort house and the old c.w.g. house. The old ancillary plant dealt with up to 6 mill. cu.ft. per day up to December, 1956, but not without difficulty from time to time, especially when a purifier box was shut off for emptying.

It was now necessary to purge the remainder of No. 1 stream, the whole of No. 2 stream, the c.w.g. stream from the point outside the new exhauster house onwards and the b.w.g. link. The c.w.g. plants were not ready, but since the c.w.g. and b.w.g. streams are interconnected beyond this point with the coal gas streams, it was necessary for them to be kept pressurised with coal gas until such time as the water gas plants were ready for commissioning.

The purging of the tower purifiers from air to purge gas was completed by the contractors' operator on December 7, 1956, enabling purging of the remainder of the ancillary plant to be carried out by the works staff on December 8 and 9, 1956. Purging of the tower purifiers from purge gas to coal gas was completed by the contractors' operator on December 12, 1956, and the remainder of the ancillary plant was purged to coal gas on December 13 and 14, 1956, by the works staff.

The purging was not considered satisfactory unless an analysis of 90% of that leaving the purging machine was obtained when purging from air to purge gas and 100% when purging from purge gas to coal gas.

When purging from air to purge gas, testing was carried out at intermediate points with a portable CO_2 indicator and by analysis at the final test points. When purging from purge to coal gas, testing was carried out at intermediate test points with a gas leak indicator and by analysis at the final test points. This saved a considerable amount of time.

After the successful purging to coal gas of the new ancillary plant, the

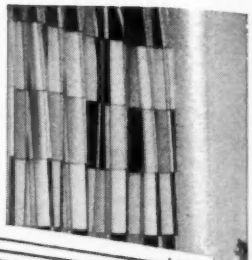
From a paper by

G. W. HARVEY,

Assoc.M.Inst.Gas E.,

WORKS SUPERINTENDENT,
WALSALL DISTRICT,
WEST MIDLANDS GAS BOARD

to the Midland Junior Gas Association.



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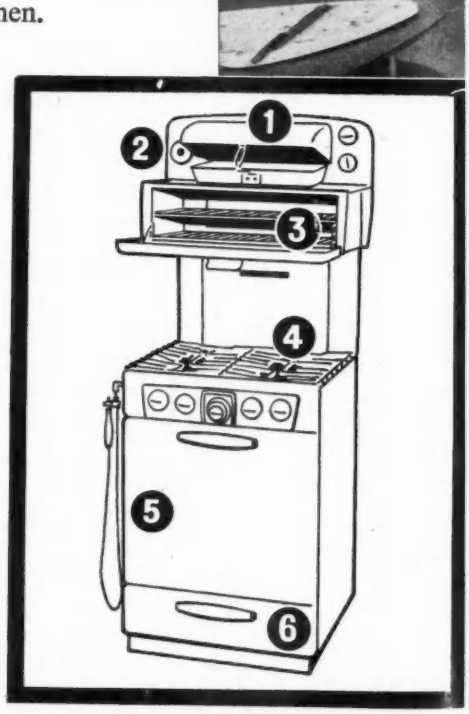

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✳ OVERALL DIMENSIONS: HEIGHT 60½", WIDTH 25½", DEPTH 22½"

next stage was its commissioning. By this time only one set of tower purifiers—six towers—were completed, and the next set of six were not due for completion for about nine months. The specification for 12 towers was that they would treat 20 mill. cu.ft. of mixed gas per day in the proportion of two volumes of coal gas to one volume of c.w.g. having a concentration of 900 grains H_2S per 100 cu.ft. We were therefore faced with the problem of dealing with up to 12 mill. cu.ft. per day with only half the towers available. Fortunately the concentration of H_2S in the gas at that time rarely exceeded 750 grains per 100 cu.ft. Nevertheless their future behaviour was an unknown quantity. It had been decided previously to fill all six towers with 75% new oxide and 25% part spent oxide, even so it was decided to feel our way gradually by continuing to pass half the gas through the old ancillary plant and half through the new ancillary plant for a few days to see how the towers reacted.

The towers worked without difficulty and it was now possible to commission the No. 2 retort house as far as the works ancillary plant was concerned, but first the new holder and booster station at James Bridge had to be commissioned to deal with the extra volume of gas. On January 8, 1957, all was ready for putting the No. 2 retort house to work. It was gratifying to find that the calorific value fell only by 5 B.t.u. per cu.ft. at the inlet of the holder when this operation was performed.

Precaution

The old ancillary plant was maintained under coal gas pressure back from the No. 4 holder to the old exhausters for a period of a fortnight, as a precaution against anything going wrong with the new ancillary plant,and in the case the old had to be put back to work. The six tower purifiers successfully carried the load, treating up to 12.9 mill. cu.ft. per day of coal gas, with an average of 10¼ mill. per day for a period of nine months, at which time the remaining six towers were completed.

By August, 1957, the erection of the c.w.g. plants, the c.w.g. relief holder in an existing masonry tank, the laying of the single inlet/outlet main from the holder to the point outside the new exhauster house had been completed. Before gas could be made, the relief holder and inlet/outlet main had to be purged. The c.w.g. stream from this point onwards had been under coal gas pressure since December 14, 1956.

The holder was purged from air to inert gas after being isolated from the stream. On completion, sufficient inert gas was left in the holder to purge the inlet/outlet main back to the plant and the exhauster house. The first c.w.g. set was gasmaking on October 9, 1957, and as the gas went forward the inlet/outlet main and the holder were cleared of inert gas by opening a purge release point at the exhauster house and the blow off valves on the holder crown. When all the inert gas had been driven out, these valves were closed and the holder allowed to fill to about half capacity. When the second c.w.g. set went to work on November 6, 1957, the whole of the gasmaking plant had been commissioned.

Before dealing with the subject of tar and liquor it is necessary to give a brief outline of the agreements between the Swan Village works of the Birmingham Division, Walsall works and the Borough of Walsall.

All the liquor from the old Walsall works had been disposed of to the sewers. This was to continue until the new ammonia washers and the concentrated ammonia plant were completed, after which time, effluent liquor only was to be discharged. Furthermore when the new Swan Village works was commissioned it was not possible for Swan Village to dispose of all their effluent until the new extension to the sewage works at West Bromwich had been completed and Walsall Corporation agreed to receive their excess effluent until the extensions were completed. The foul liquor from the new retort houses at Walsall was not acceptable to Walsall Corporation however, and it had to be sent to Swan Village for dephenolation, with Swan Village returning to Walsall an equivalent volume of crude liquor in addition to their excess effluent. It was planned for a dephenolation plant to be installed finally at Walsall, but since then the project has been deferred as all the foul liquor is being disposed of to agriculture.

Three stages

The operations dealing with the foul liquor were divided into three stages. At stage 1 an old egg end boiler was obtained and let into the ground. This old boiler received the foul liquor from No. 1 retort house separator; it was then pumped to road tankers for dephenolation at Swan Village works, Birmingham. This boiler was rather small and when the new c.w.g. tar well had been completed, the foul liquor was diverted to the c.w.g. well as a stage II temporary measure, and then to Swan Village tankers for dephenolation or to tankers for agricultural spraying which had been introduced by that time.

Stage III coincided with the commissioning of No. 2 retort house and the foul liquor was led permanently to the new foul liquor well. All foul liquor is now disposed of for agricultural spraying. While the stock was building up in the new well, the c.w.g. tar well was emptied for the eventual reception of c.w.g. tar.

The handling of the crude liquor was dealt with in three stages. At stage 1 the weak and strong liquor from the primary condensers ran as a common feed to the old liquor well beneath the floor of the old exhauster house and was used to feed the old Livesey washers. The old rotary ammonia washers were fed with water, the return going back to the same well, which resulted in dilution of the liquor and increasing the stock; hence the necessity for the crude liquor to run to the sewer via an old overhead divided tank, an old separator tank and a coke filter. Liquor from the old tar and liquor well could also be disposed of by this route.

Common well

Stage II was reached when the new Nos. 1 and 2 tar wells had been completed and it was decided to use the new No. 1 tar well as a common well for weak and strong liquor in order to release the area of the old tar and liquor well. Stage III was reached at the same time as No. 2 retort house was brought into operation, by which time the new strong and weak liquor wells had been completed and the new strong liquor line had been installed from the primary condenser separators.

As soon as the strong and weak liquor were connected to their respective wells, there arrived a reasonable period for build up of stocks in the new wells. During this period the concentrated ammonia plant was being finally prepared and checked over, so that it was possible to start this plant before the stocks built up too high. When the C.A. plant was running, its effluent was turned into the new disposal tank (known as the balancing tank) and thence to its final disposal point to the sewer. The effluent from Swan Village was also put through the balancing tank until West Bromwich sewage extensions were completed. Also during the build up in the new wells it was possible to dispose of most of the liquor from the new No. 1 tar well, ready to receive tar.

At Stage 1 the tar was led from the No. 1 retort house separator to the old tar well and after separation was pumped to the tar section of the old overhead divided tank from when it

was loaded into barges or road tankers for sale. Stage II was reached when the new No. 2 tar well had been completed at which time the line was extended to the new well as a temporary measure and the old well connection capped off. At this stage any foul liquor which separated from the tar could not be removed.

At stage III the line was diverted to the new No. 1 tar well, after that well had been emptied of the common strong/weak/Swan Village liquor. This stage was carried out in conjunction with the weak and strong liquor stage III. The No. 2 retort house was also connected to the system. The new tar wells were now operational, No. 1 receiving the tar direct from the retort house separators and after separation in the well, the tar could be transferred to the new No. 2 well through the Pen Stock valves prior to sale, any foul liquor that separated out in No. 1 well, being decanted off into the foul liquor well.

The light oil—hot gas detarrer oil was the simplest of all to deal with and was carried out in two stages only. In stage 1, the oil was conveyed from the primary condenser separators to an old tank and then mixed with the tar from the old overhead tar tank on sale. At stage II, on completion of the new light oil tank, the line was capped off from the old light oil tank.

On several occasions, such as final emptying of wells, awaiting pipe connections, etc., it was necessary to transfer tars and liquors within the works by tankers and short term pipe lines. This occurred very seldom, however, since the co-operation between the reconstruction staff and the works staff was always very close.

MIDLAND JUNIORS TOUR STEWARTS & LLOYDS, CORBY

THE Midland Junior Gas Association, led by the President, Mr. G. W. F. Cockayne and the Senior Vice-President, Mr. S. C. Porter, toured the Corby works of Stewarts & Lloyds, Ltd., recently, where they saw the smelting of the iron ore followed by its conversion into steel by the Bessemer process.

They watched the ingots converted into strip metal, which was later made into tubes by three separate processes, electric welding (cold), hot welding, and by a process in which the tube was made from solid metal.

Features which caught the eye were the extensive use of overhead travelling cranes for carrying the metal from process to process, including the carrying of the 25-ton ladles filled from the 1,000 ton furnaces to the Bessemer furnaces, and the use of rollers for the conveying of the hot tubes as they passed through the various stages of production.

The party was received by Mr. John Shaw, Assistant General Manager of the tube works, and entertained to lunch in the well-appointed works social centre.

Present at the Association's annual dinner which was held recently were Mr. E. M. Edwards, President of the Institution of Gas Engineers, and Mr. G. le B. Diamond, Chairman of the West Midlands Gas Board.

Light feedstock

Mr. Diamond, proposing the toast of the Association, said that the West Midlands Gas Board placed high hopes in the future of the new raw material for gasmaking, namely, primary flash distillate, a by-product of the oil refineries now renamed light gasworks feedstock (L.G.F.).

The use of this fuel would add further to the flexibility of gas production.

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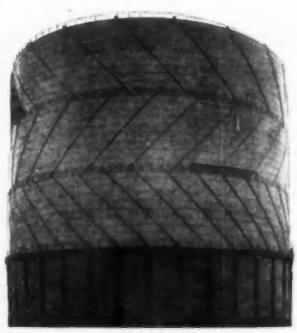

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Purifiers contract for Newton Chambers

Hydrogen sulphide removal from pressurised gas

A NEW type of tower purifier installation, never before used in Britain, will be incorporated in the Lurgi pressure-gasification plant which the Scottish Gas Board are building at Westfield on the border of Fife and Kinrossshire.

The contract for building the purifiers, which are to have a capacity of 30 mill. cu.ft. of gas a day, has been awarded by the Scottish Gas Board and Humphreys & Glasgow Ltd. (the main contractors for the erection of the works) to Newton Chambers and Co., Ltd., of Sheffield. The cost of the installation will be about £150,000.

Exclusive rights

The purifiers are of the Bischoff type for high-pressure operation. The Newton Chambers Company recently concluded an agreement with the firm of Bischoff of Essen whereby they acquired the exclusive rights to build these purifiers and other specialist plant in Britain. The contract for the Scottish Gas Board's plant is the first to be undertaken by Newton Chambers under this agreement.

The Bischoff system has been specially designed and proved for high-pressure operation. It eliminates the large number of valves usually associated with oxide purification systems, and oxide handling is fully mechanised to reduce labour requirements.

Primary purpose

In high-pressure gasification by the Lurgi process, hydrogen sulphide is removed at two different points in the stream. Most of it is removed when the gas passes through the Benfield washing plant, but the primary purpose of the Benfield plant is to remove carbon dioxide which is present in larger quantities in the Lurgi process than in conventional systems; it is to remove the remaining traces of hydrogen sulphide that the Bischoff tower purifiers are being installed.

New mixture

The installation visualised for the Scottish Gas Board's plant will comprise two parallel streams each of four high-pressure tower purifiers, and will operate at a pressure of approximately 300 lb. per sq. in.; each purifier containing a number of trays filled with a specially-prepared mixture of oxide of iron. Normally gas will pass through both streams, but at fixed intervals of about 21 days the gas will be shut off one stream, all the gas passing temporarily through the other.

The idle stream will then be depressurised and purged with inert gas, and the purifiers will be opened by removing the special quick-opening covers at the top of each tower to enable the trays to be removed.

By this time the oxide in the trays in the first of the four towers will have maximum sulphur content, and can be removed and placed on the stock heap for sale.

The trays taken out of the other three towers are then moved up, the last tower in the series being filled with trays containing a completely new mixture. An overhead crane performs this complete sequence of oxide rotation in a few hours, following which both streams of purifiers are available for operation.

This rotation of the oxide in relation to the towers is a patented feature of the Bischoff system. Stocking towers, in which trays of oxide will be stored during the emptying and filling operations, are provided.

The two linked stands of the West Midlands Gas Board at the National Trades Homes and Gardens Exhibition, Bingley Hall, Birmingham. Over 70 appliances were on view to the public.

BUSY DAY FOR E. SCOTLAND JUNIORS

THIRTY-FIVE years ago, Aberdeen was chosen as the venue for a meeting of the East of Scotland Junior Gas Association. The absence was broken when the Association met there again recently to hear Mr. S. R. McCrae, Divisional Distribution Technical Assistant, Aberdeen, present his paper 'The Elgin/Cullen Integration.'

The meeting, chaired by the President, Mr. J. G. Rutherforth, was held in the new service centre. Afterwards, members visited the Tullos holder station and Aberdeen gasworks.

The holder station was commissioned in March, 1958, and members were shown round the booster house containing the high pressure and medium pressure boosting equipment. A Cardox rock-blasting assembly was displayed in addition to two of the diggers used on the Elgin/Cullen Integration.

At the gasworks the party inspected No. 5 setting, erected in 1957, comprising 16 103-in. major axis downward heated Woodall-Duckham continuous vertical retorts and associated step grate producers and waste heat boilers. Visitors saw the new coke screening plant, the gas condensing and washing plant, the oxide of iron purification plant and the works laboratories.

Mr. J. T. Christie, Vice-President of the Association, proposed a vote of thanks to Mr. H. S. Milne, General Manager, Northern Division, Scottish Gas Board.

Gas Council booklet on appliance care

Simple instructions and reminders on how to look after gas equipment in the home and use it with safety, are contained in the Gas Council's latest booklet, *Getting the Best Out of Your Gas Appliances.* Hints on choosing and using appliances, and the services available are given, as well as some useful 'Do's' and 'Don'ts.' The booklet is free from local gas showrooms.

PLASTICS CONVENTION

Sixteen papers are to be presented at this year's International Plastics Convention, held in conjunction with the International Plastics Exhibition at Olympia, London, June 17-27 next.

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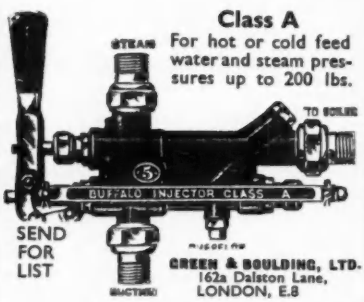

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SECRETARY,
SOUTH EASTERN GAS CONSULTATIVE COUNCIL

APPLICATIONS are invited for the position of Secretary to the South Eastern Gas Consultative Council as from October 1, 1959. The duties will be of a general secretarial nature and will include a considerable amount of Committee work and the preparation of reports and memoranda. Experience of this kind of work is desirable.

The salary for the post is £1,021 rising to £1,146 (men) and £965 rising to £1,146 (women). The post is non-pensionable, but a South Eastern Gas Board employee, if selected, would be seconded and would retain his pension rights.

Applications stating age, education and qualifications, experience and present appointment, together with the names and addresses of two referees, one of whom should be qualified to speak about the applicant's business experience, should be sent to the Chairman, South Eastern Gas Consultative Council, Bondway House, 3, Bondway, London, S.W.8, by May 1, 1959.

NORTH THAMES GAS BOARD

A **SAFETY OFFICER is required at the GAS** WORKS, SOUTHALL, MIDDLESEX.

Applicants, who should not be over 40 years of age, should have had experience of industrial accident prevention and of general engineering practices. Knowledge of gasworks procedure and attendance at an industrial accident prevention course would be added advantages.

Starting salary will be within the range £808 to £888 per annum according to age, qualifications and experience.

The successful candidate will be required to join the Staff Pension Scheme.

Applications, stating age and experience, should be sent within ten days of this advertisement to the Staff Controller, 30, Kensington Church Street, London, W.8, quoting reference GJ/705.

SCOTTISH GAS BOARD
CENTRAL DIVISION

HOME SERVICE ADVISER—LEVEN GROUP

APPLICATIONS are invited for the position of Home Service Adviser in the Leven Group of the Central Division.

The duties include the organisation of demonstrations, and advising on the correct use of domestic appliances. Applicants are expected to hold a Diploma and Demonstration Certificate of a recognised Domestic Science College.

Salary Scale A.P.T. IV (£455 to £604 per annum, the salary for a newly-qualified person would be £ per annum for a probationary period of six months with promotion to salary scale A.P.T. IV on successful completion of the probationary period. In appropriate cases consideration will be given to eventual up-grading to A.P.T. V (£595 to £669 per annum).

The post is pensionable, and the successful applicant will be required to pass a medical examination.

Applications, stating age, education, qualifications and experience should reach the Personnel Officer, The Scottish Gas Board, Friarton, Perth, before Monday, May 11, 1959.

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A **FIRST CLASS gasfitter is required at Thrapston,** Northants. The rate of pay is at present 4s. 11d. per hour. A small house is available at a reasonable rental adjoining the Thrapston Works. Applications in writing, stating age, education, details of apprenticeship, experience and present appointment to the Group Manager, East Midlands Gas Board, Commercial Place, Wellingborough, not later than May 1, 1959.

D. A. FOSTER,
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